



OIPE

RAW SEQUENCE LISTING

DATE: 11/21/2002

PATENT APPLICATION: US/09/902,481B

TIME: 10:19:18

Input Set : A:\A70586-1 Proposed Substitute.ST25.txt

Output Set: N:\CRF4\11212002\I902481B.raw

3 <110> APPLICANT: Springer, Timothy
 4 Shimaoka, Motomu
 5 Shifman, Julia
 6 Mayo, Stephen
 8 <120> TITLE OF INVENTION: NOVEL PROTEINS WITH INTEGRIN-LIKE ACTIVITY
 10 <130> FILE REFERENCE: A-70586-1/RFT/RMS/RMK
 12 <140> CURRENT APPLICATION NUMBER: US 09/902,481B
 13 <141> CURRENT FILING DATE: 2001-07-09
 15 <150> PRIOR APPLICATION NUMBER: US 60/216,600
 16 <151> PRIOR FILING DATE: 2000-07-07
 18 <160> NUMBER OF SEQ ID NOS: 13
 20 <170> SOFTWARE: PatentIn version 3.1
 22 <210> SEQ ID NO: 1
 23 <211> LENGTH: 1153
 24 <212> TYPE: PRT
 25 <213> ORGANISM: Homo sapiens
 27 <220> FEATURE:
 28 <221> NAME/KEY: mat_peptide
 29 <222> LOCATION: (17)..()
 30 <223> OTHER INFORMATION:

p.6

ENTERED

W--> 32 <400> 1
 34 Met Ala Leu Arg Val Leu Leu Leu Thr Ala Leu Thr Leu Cys His Gly
 35 -15 -10 -5 -1
 38 Phe Asn Leu Asp Thr Glu Asn Ala Met Thr Phe Gln Glu Asn Ala Arg
 39 1 5 10 15
 42 Gly Phe Gly Gln Ser Val Val Gln Leu Gln Gly Ser Arg Val Val Val
 43 20 25 30
 46 Gly Ala Pro Gln Glu Ile Val Ala Ala Asn Gln Arg Gly Ser Leu Tyr
 47 35 40 45
 50 Gln Cys Asp Tyr Ser Thr Gly Ser Cys Glu Pro Ile Arg Leu Gln Val
 51 50 55 60
 54 Pro Val Glu Ala Val Asn Met Ser Leu Gly Leu Ser Leu Ala Ala Thr
 55 65 70 75 80
 58 Thr Ser Pro Pro Gln Leu Leu Ala Cys Gly Pro Thr Val His Gln Thr
 59 85 90 95
 62 Cys Ser Glu Asn Thr Tyr Val Lys Gly Leu Cys Phe Leu Phe Gly Ser
 63 100 105 110
 66 Asn Leu Arg Gln Gln Pro Gln Lys Phe Pro Glu Ala Leu Arg Gly Cys
 67 115 120 125
 70 Pro Gln Glu Asp Ser Asp Ile Ala Phe Leu Ile Asp Gly Ser Gly Ser
 71 130 135 140
 74 Ile Ile Pro His Asp Phe Arg Arg Met Lys Glu Phe Val Ser Thr Val
 75 145 150 155 160

RAW SEQUENCE LISTING

DATE: 11/21/2002

PATENT APPLICATION: US/09/902,481B

TIME: 10:19:18

Input Set : A:\A70586-1 Proposed Substitute.ST25.txt

Output Set: N:\CRF4\11212002\I902481B.raw

```

78 Met Glu Gln Leu Lys Lys Ser Lys Thr Leu Phe Ser Leu Met Gln Tyr
79          165          170          175
82 Ser Glu Glu Phe Arg Ile His Phe Thr Phe Lys Glu Phe Gln Asn Asn
83          180          185          190
86 Pro Asn Pro Arg Ser Leu Val Lys Pro Ile Thr Gln Leu Leu Gly Arg
87          195          200          205
90 Thr His Thr Ala Thr Gly Ile Arg Lys Val Val Arg Glu Leu Phe Asn
91          210          215          220
94 Ile Thr Asn Gly Ala Arg Lys Asn Ala Phe Lys Ile Leu Val Val Ile
95 225          230          235          240
98 Thr Asp Gly Glu Lys Phe Gly Asp Pro Leu Gly Tyr Glu Asp Val Ile
99          245          250          255
102 Pro Glu Ala Asp Arg Glu Gly Val Ile Arg Tyr Val Ile Gly Val Gly
103          260          265          270
106 Asp Ala Phe Arg Ser Glu Lys Ser Arg Gln Glu Leu Asn Thr Ile Ala
107          275          280          285
110 Ser Lys Pro Pro Arg Asp His Val Phe Gln Val Asn Asn Phe Glu Ala
111          290          295          300
114 Leu Lys Thr Ile Gln Asn Gln Leu Arg Glu Lys Ile Phe Ala Ile Glu
115 305          310          315          320
118 Gly Thr Gln Thr Gly Ser Ser Ser Ser Phe Glu His Glu Met Ser Gln
119          325          330          335
122 Glu Gly Phe Ser Ala Ala Ile Thr Ser Asn Gly Pro Leu Leu Ser Thr
123          340          345          350
126 Val Gly Ser Tyr Asp Trp Ala Gly Gly Val Phe Leu Tyr Thr Ser Lys
127          355          360          365
130 Glu Lys Ser Thr Phe Ile Asn Met Thr Arg Val Asp Ser Asp Met Asn
131          370          375          380
134 Asp Ala Tyr Leu Gly Tyr Ala Ala Ala Ile Ile Leu Arg Asn Arg Val
135 385          390          395          400
138 Gln Ser Leu Val Leu Gly Ala Pro Arg Tyr Gln His Ile Gly Leu Val
139          405          410          415
142 Ala Met Phe Arg Gln Asn Thr Gly Met Trp Glu Ser Asn Ala Asn Val
143          420          425          430
146 Lys Gly Thr Gln Ile Gly Ala Tyr Phe Gly Ala Ser Leu Cys Ser Val
147          435          440          445
150 Asp Val Asp Ser Asn Gly Ser Thr Asp Leu Val Leu Ile Gly Ala Pro
151          450          455          460
154 His Tyr Tyr Glu Gln Thr Arg Gly Gly Gln Val Ser Val Cys Pro Leu
155 465          470          475          480
158 Pro Arg Gly Gln Arg Ala Arg Trp Gln Cys Asp Ala Val Leu Tyr Gly
159          485          490          495
162 Glu Gln Gly Gln Pro Trp Gly Arg Phe Gly Ala Ala Leu Thr Val Leu
163          500          505          510
166 Gly Asp Val Asn Gly Asp Lys Leu Thr Asp Val Ala Ile Gly Ala Pro
167          515          520          525
170 Gly Glu Glu Asp Asn Arg Gly Ala Val Tyr Leu Phe His Gly Thr Ser
171          530          535          540
174 Gly Ser Gly Ile Ser Pro Ser His Ser Gln Arg Ile Ala Gly Ser Lys

```

RAW SEQUENCE LISTING

DATE: 11/21/2002

PATENT APPLICATION: US/09/902,481B

TIME: 10:19:18

Input Set : A:\A70586-1 Proposed Substitute.ST25.txt

Output Set: N:\CRF4\11212002\I902481B.raw

```

175 545          550          555          560
178 Leu Ser Pro Arg Leu Gln Tyr Phe Gly Gln Ser Leu Ser Gly Gly Gln
179          565          570          575
182 Asp Leu Thr Met Asp Gly Leu Val Asp Leu Thr Val Gly Ala Gln Gly
183          580          585          590
186 His Val Leu Leu Leu Arg Ser Gln Pro Val Leu Arg Val Lys Ala Ile
187          595          600          605
190 Met Glu Phe Asn Pro Arg Glu Val Ala Arg Asn Val Phe Glu Cys Asn
191          610          615          620
194 Asp Gln Val Val Lys Gly Lys Glu Ala Gly Glu Val Arg Val Cys Leu
195 625          630          635          640
198 His Val Gln Lys Ser Thr Arg Asp Arg Leu Arg Glu Gly Gln Ile Gln
199          645          650          655
202 Ser Val Val Thr Tyr Asp Leu Ala Leu Asp Ser Gly Arg Pro His Ser
203          660          665          670
206 Arg Ala Val Phe Asn Glu Thr Lys Asn Ser Thr Arg Arg Gln Thr Gln
207          675          680          685
210 Val Leu Gly Leu Thr Gln Thr Cys Glu Thr Leu Lys Leu Gln Leu Pro
211          690          695          700
214 Asn Cys Ile Glu Asp Pro Val Ser Pro Ile Val Leu Arg Leu Asn Phe
215 705          710          715          720
218 Ser Leu Val Gly Thr Pro Leu Ser Ala Phe Gly Asn Leu Arg Pro Val
219          725          730          735
222 Leu Ala Glu Asp Ala Gln Arg Leu Phe Thr Ala Leu Phe Pro Phe Glu
223          740          745          750
226 Lys Asn Cys Gly Asn Asp Asn Ile Cys Gln Asp Asp Leu Ser Ile Thr
227          755          760          765
230 Phe Ser Phe Met Ser Leu Asp Cys Leu Val Val Gly Gly Pro Arg Glu
231          770          775          780
234 Phe Asn Val Thr Val Thr Val Arg Asn Asp Gly Glu Asp Ser Tyr Arg
235 785          790          795          800
238 Thr Gln Val Thr Phe Phe Phe Pro Leu Asp Leu Ser Tyr Arg Lys Val
239          805          810          815
242 Ser Thr Leu Gln Asn Gln Arg Ser Gln Arg Ser Trp Arg Leu Ala Cys
243          820          825          830
246 Glu Ser Ala Ser Ser Thr Glu Val Ser Gly Ala Leu Lys Ser Thr Ser
247          835          840          845
250 Cys Ser Ile Asn His Pro Ile Phe Pro Glu Asn Ser Glu Val Thr Phe
251          850          855          860
254 Asn Ile Thr Phe Asp Val Asp Ser Lys Ala Ser Leu Gly Asn Lys Leu
255 865          870          875          880
258 Leu Leu Lys Ala Asn Val Thr Ser Glu Asn Met Pro Arg Thr Asn
259          885          890          895
262 Lys Thr Glu Phe Gln Leu Glu Leu Pro Val Lys Tyr Ala Val Tyr Met
263          900          905          910
266 Val Val Thr Ser His Gly Val Ser Thr Lys Tyr Leu Asn Phe Thr Ala
267          915          920          925
270 Ser Glu Asn Thr Ser Arg Val Met Gln His Gln Tyr Gln Val Ser Asn
271          930          935          940

```

RAW SEQUENCE LISTING

DATE: 11/21/2002

PATENT APPLICATION: US/09/902,481B

TIME: 10:19:18

Input Set : A:\A70586-1 Proposed Substitute.ST25.txt

Output Set: N:\CRF4\11212002\I902481B.raw

```

274 Leu Gly Gln Arg Ser Leu Pro Ile Ser Leu Val Phe Leu Val Pro Val
275 945                      950                      955                      960
278 Arg Leu Asn Gln Thr Val Ile Trp Asp Arg Pro Gln Val Thr Phe Ser
279                      965                      970                      975
282 Glu Asn Leu Ser Ser Thr Cys His Thr Lys Glu Arg Leu Pro Ser His
283                      980                      985                      990
286 Ser Asp Phe Leu Ala Glu Leu Arg Lys Ala Pro Val Val Asn Cys Ser
287                      995                      1000                      1005
290 Ile Ala Val Cys Gln Arg Ile Gln Cys Asp Ile Pro Phe Phe Gly
291                      1010                      1015                      1020
294 Ile Gln Glu Glu Phe Asn Ala Thr Leu Lys Gly Asn Leu Ser Phe
295                      1025                      1030                      1035
298 Asp Trp Tyr Ile Lys Thr Ser His Asn His Leu Leu Ile Val Ser
299                      1040                      1045                      1050
302 Thr Ala Glu Ile Leu Phe Asn Asp Ser Val Phe Thr Leu Leu Pro
303                      1055                      1060                      1065
306 Gly Gln Gly Ala Phe Val Arg Ser Gln Thr Glu Thr Lys Val Glu
307                      1070                      1075                      1080
310 Pro Phe Glu Val Pro Asn Pro Leu Pro Leu Ile Val Gly Ser Ser
311                      1085                      1090                      1095
314 Val Gly Gly Leu Leu Leu Leu Ala Leu Ile Thr Ala Ala Leu Tyr
315                      1100                      1105                      1110
318 Lys Leu Gly Phe Phe Lys Arg Gln Tyr Lys Asp Met Met Ser Glu
319                      1115                      1120                      1125
322 Gly Gly Pro Pro Gly Ala Glu Pro Gln
323                      1130                      1135
326 <210> SEQ ID NO: 2
327 <211> LENGTH: 4740
328 <212> TYPE: DNA
329 <213> ORGANISM: Homo sapiens
331 <400> SEQUENCE: 2
332 gaattccgtg gttcctcagt ggtgcctgca acccctgggt caccctccttc cagggttctgg 60
334 ctccctccag ccatggctct cagagtcctt ctgttaacag ccttgacctt atgtcatggg 120
336 ttcaacttgg aactgaaaa cgcaatgacc ttccaagaga acgcaagggg cttcggggcag 180
338 agcgtgggtc agcttcaggg atccagggtg gtgggttgag cccccagga gatagtggct 240
340 gccaaccaaa ggggcagcct ctaccagtgc gactacagca caggctcatg cgagcccatc 300
342 cgcctgcagg tccccgtgga ggccgtgaac atgtccctgg gcctgtccct ggcagccacc 360
344 accagccccc ctccagctgct ggccgtgtgt cccaccgtgc accagacttg cagtgagaac 420
346 acgtatgtga aagggctctg cttcctgttt ggatccaacc tacggcagca gccccagaag 480
348 ttcccagagg ccctccgagg gtgtcctcaa gaggatagtg acattgcctt cttgattgat 540
350 ggctctggtg gcatcatccc acatgacttt cggcggatga aggagtttgt ctcaactgtg 600
352 atggagcaat taaaaaagtc caaaaccttg ttctctttga tgcagtactc tgaagaattc 660
354 cggattcact ttaccttcaa agagttccag aacaacccta acccaagatc actggtgaag 720
356 ccaataacgc agctgcttgg gcggacacac acggccacgg gcatccgcaa agtggtagca 780
358 gagctgttta acatcaccaa cggagcccga aagaatgcct ttaagatcct agttgtcatc 840
360 acggatggag aaaagtttgg cgatcccctt ggatatgagg atgtcatccc tgaggcagac 900
362 agagaggggg tcatcgcta cgtcattggg gtgggagatg ccttccgcag tgagaaatcc 960
364 cgccaagagc ttaataccat cgcattcaag ccgcctcgtg atcacgtgtt ccagggtgaat 1020
366 aactttgagg ctctgaagac cattcagaac cagcttcggg agaagatctt tgcgatcgag 1080

```

RAW SEQUENCE LISTING

DATE: 11/21/2002

PATENT APPLICATION: US/09/902,481B

TIME: 10:19:18

Input Set : A:\A70586-1 Proposed Substitute.ST25.txt

Output Set: N:\CRF4\11212002\I902481B.raw

```

368 ggtactcaga caggaagtag cagctccttt gagcatgaga tgtctcagga aggcttcagc 1140
370 gctgccatca cctctaattg ccccttgctg agcactgtgg ggagctatga ctgggctggg 1200
372 ggagtctttc tatatacatc aaaggagaaa agcaccttca tcaacatgac cagagtggat 1260
374 tcagacatga atgatgctta cttgggttat gctgccgcca tcatcttacg gaaccgggtg 1320
376 caaagcctgg ttctgggggc acctcgatat cagcacatcg gcctggtagc gatgttcagg 1380
378 cagaacactg gcatgtggga gtccaacgct aatgtcaagg gcacccagat cggcgccctac 1440
380 ttcggggcct cctctgctc cgtggacgtg gacagcaacg gcagcaccga cctggtcctc 1500
382 atcggggccc cccattacta cgagcagacc cgagggggcc aggtgtccgt gtgccccttg 1560
384 cccagggggc agagggctcg gtggcagtgat gatgtgttc tctacgggga gcagggccaa 1620
386 ccctggggcc gctttggggc agccctaaca gtgctggggg acgtaaatgg ggacaagctg 1680
388 acggacgtgg ccattggggc cccaggagag gaggacaacc ggggtgctgt ttacctgttt 1740
390 cacggaacct caggatctgg catcagcccc tcccatagcc agcggatagc aggtccaag 1800
392 ctctctccca ggctccagta ttttggtcag tctactgagt ggggccagga cctcacaatg 1860
394 gatggactgg tagacctgac tgtaggagcc caggggcacg tgctgtgctc caggtcccag 1920
396 ccagtactga gagtcaaggc aatcatggag ttcaatccca gggaaagtgg aaggaatgta 1980
398 tttgagtgtg atgatcaggt ggtgaaaggc aaggaagccg gagaggtcag agtctgcctc 2040
400 catgtccaga agagcacacg ggatcggcta agagaaggac agatccagag tgttgtgact 2100
402 tatgacctgg ctctggactc cggccgcccc cattcccgcg ccgtcttcaa tgagacaaaag 2160
404 aacagcacac gcagacagac acaggtcttg gggctgacct agacttgtga gacctgaaa 2220
406 ctacagttgc cgaattgcat cgaggacca gtgagcccca ttgtgctgct cctgaacttc 2280
408 tctctggtgg gaacgccatt gtctgctttc gggaaacctc ggccagtgtc ggcggaggat 2340
410 gctcagagac tcttcacagc cttgtttccc tttgagaaga attgtggcaa tgacaacatc 2400
412 tgccaggatg acctcagcat caccttcagt ttcatgagcc tggactgcct cgtggtgggt 2460
414 gggccccggg agttcaacgt gacagtgact gtgagaaatg atggtgagga ctctacagg 2520
416 acacaggtca ccttcttctt cccgcttgac ctgtcctacc ggaaggtgtc cacactccag 2580
418 aaccagcgct cacagcgatc ctggcgctg gcctgtgagt ctgcctcctc caccgaagtg 2640
420 tctggggcct tgaagagcac cagctgcagc ataaaccacc ccatcttccc ggaaaactca 2700
422 gaggtcacct ttaatatcac gtttgatgta gactctaagg ctcccttg gaaacaaactg 2760
424 ctctcaagg ccaatgtgac cagtgagaac aacatgcccc gaaccaacaa aaccgaattc 2820
426 caactggagc tgccgggtgaa atatgctgtc tacatggtgg tcaccagcca tggggtctcc 2880
428 actaaatatc tcaacttcac ggctcagag aataccagtc gggtcagtca gcatcaatat 2940
430 caggtcagca acctggggca gaggagcctc cccatcagcc tgggtgttctt ggtgcccgtc 3000
432 cggtgaacc agactgtcat atgggaccgc ccccaggtca ctttctccga gaacctctcg 3060
434 agtacgtgcc acaccaagga gcgcttgccc tctactccg actttctggc tgagcttcgg 3120
436 aaggcccccg tggatgaactg ctccatcgct gtctgccaga gaatccagtg tgacatcccg 3180
438 ttctttggca tccaggaaga attcaatgct accctcaaag gcaacctctc gtttgactgg 3240
440 tacatcaaga cctcgcataa ccacctcctg atcgtgagca cagctgagat cttgtttaac 3300
442 gattccgtgt tcacctgtc gccgggacag ggggcgtttg tgagggtcca gacggagacc 3360
444 aaagtggagc cgttcgaggt ccccaacccc ctgccgtca tcgtgggcag ctctgtcggg 3420
446 ggactgctgc tctggccct catcaccgcc gcgctgtaca agctcggtt cttcaagcgg 3480
448 caatacaagg acatgatgag tgaagggggg ccccgggggg ccgaaccca gtagcggtc 3540
450 cttcccga gaagctgcctc tcggtggcca gcaggactct gccagacca cacgtagccc 3600
452 ccaggctgtg ggacagctcg gacagcgaag tatcccgcac aggacgggct tgggcttcca 3660
454 tttgtgtgtg tgcaagtgtg tatgtgcgtg tgtgcagatg tgtgcaagtg tctgtgtgca 3720
456 agtgtgtgca cgtgtgcgtg tgcgtgcagt gtctactgca cgcccatgtg tgagtgtgtg 3780
458 caagtatgtg agtgtgtcca gtgtgtgtgc gtgtgtccat gtgtgtgcag tgtgtgtatg 3840
460 tgtgcgagtg tgtgcatgtg tgtgctcagg ggctgtggct cacgtgtgtg actcagagtg 3900
462 tctctggcgt gtgggtagggt gacggcagcg tagcctctcc ggcagaaggg aactgcctgg 3960
464 gctcccctgt gcgtgggtaa gccgctgctg gggtttcctc cgggagaggg gacggtcaat 4020

```

RAW SEQUENCE LISTING ERROR SUMMARY DATE: 11/21/2002
PATENT APPLICATION: US/09/902,481B TIME: 10:19:19

Input Set : A:\A70586-1 Proposed Substitute.ST25.txt
Output Set: N:\CRF4\11212002\I902481B.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:7; Xaa Pos. 3,4,5,6